Rexroth
Bosch Group

Proportional pressure reducing valve, direct operated, rising characteristic curve

RE 64655/03.09 1/10
Replaces: 06.03

Type MHDRE 06 SK (high-performance)

Size 6
Component series 3X
Maximum control pressure 30 bar
Maximum flow 40 l/min

H7475

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Information on available spare parts:
www.boschrexroth.com/spc

Features

- Pilot valve
- Direct operated proportional pressure reducing valve for reducing system pressures
- As cartridge valve
- Mounting cavity R/MHDRE 06
- Suitable for mobile applications
- Actuation by means of proportional solenoid
- In case of power failure, the minimum pressure is set
- Recommended control electronics:
  • Mobile amplifier type RA and RC

Ordering code

MHDRE	06	S	K	3X/		A			V	*

Proportional pressure reducing valve, direct operated

Size 6 **= 06**

Rising characteristic curve **= S**

Screw-in cartridge valve **= K**

Component series 30 to 39 **= 3X**
(30 to 39: unchanged installation and connection dimensions)

Maximum control pressure 18 bar **= 18**
Maximum control pressure 20 bar **= 20**
Maximum control pressure 26 bar **= 26**
Maximum control pressure 30 bar **= 30**

Proportional solenoid, wet-pin **= A**

[1] Mating connectors (separate order) see RE 08006

Nominal voltage

G12 = DC 12 V
G24 = DC 24 V

Electrical connection [1]

K4 = Without mating connector with connector DIN EN 175301-803
K40 = Without mating connector with connector DT 04-2PA (Deutsch plug)
C4 = Wthout cable socket with connector AMP Junior Timer

Seal material

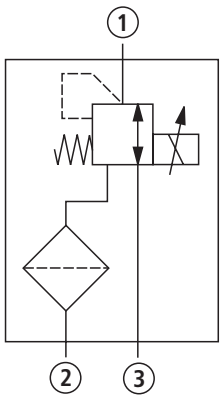
V = FKM seals
(other seals at request)
Attention!
Observe compatibility of seals with the hydraulic fluid used!

Further information in the clear text

Standard types

Type	Material number	
	12 V	24 V
MHDRE 06 SK3X/18AG .. K40V	R901220628	R901156353
MHDRE 06 SK3X/20AG .. K40V	R901150864	R901220641
MHDRE 06 SK3X/26AG .. K40V	R901220722	R901220719
MHDRE 06 SK3X/30AG .. K40V	R901220724	R901220723

Symbol



① = Main port 1 (A)
② = Main port 2 (P)
③ = Main port 3 (T)

Function, section

General

The proportional pressure reducing valve type MHDRE 06 SK is a direct operated screw-in cartridge valve in 3-way design. It reduces the control pressure (main port ①) proportionally to the solenoid current and regarding its function is largely independent of the inlet pressure (main port ②).

With command value 0 and/or in the event of a power failure, the pressure is automatically reduced to minimum. Operation is effected by a proportional solenoid. The interior of the solenoid is connected with main port ③ and filled with hydraulic fluid.

By means of these valves, the system pressure can be continuously reduced depending on the electrical command value. The valve is suitable for controlling couplings, pumps, and directional valves as well as for the use in proportional pilot controls (particularly in the mobile area).

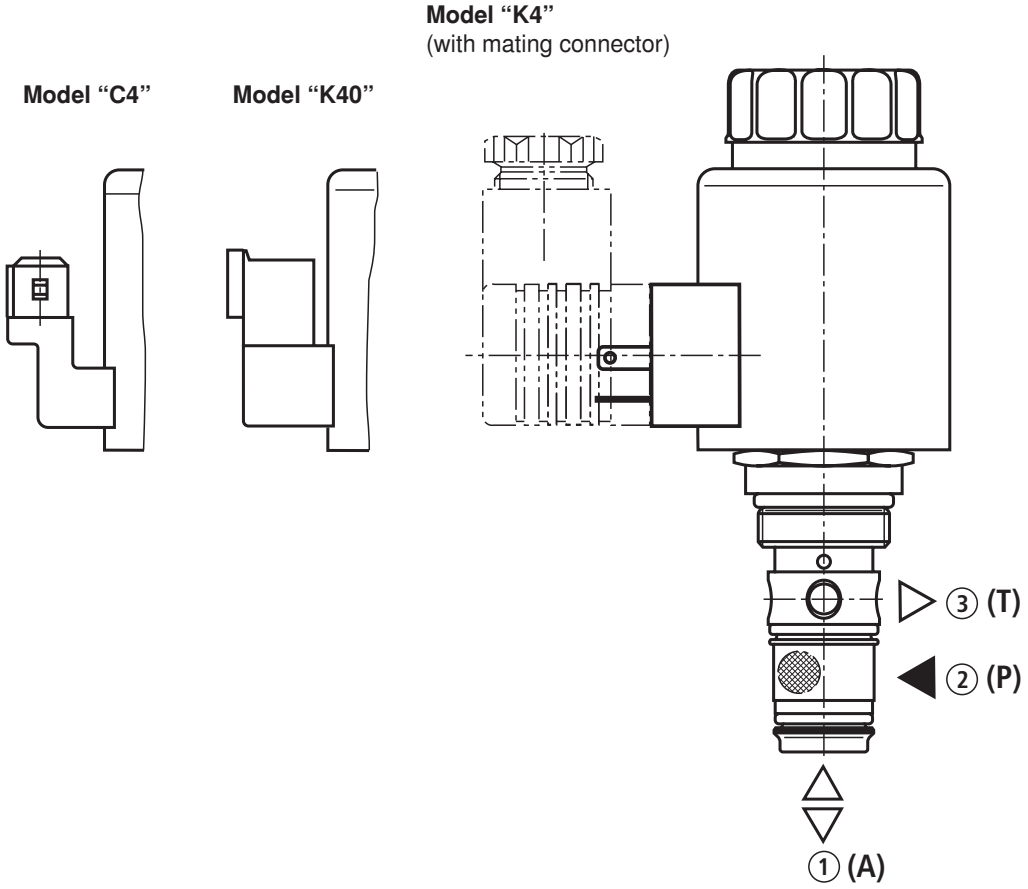
Basic principle

The valve regulates the pressure in main port ① according to the current at the solenoid. Model “S” means rising characteristic curve, i.e. increasing current results in increasing pressure (see characteristic curves, page 6 and 7).

The proportional solenoid converts the electric power into mechanical force that - via the armature - acts on the spool. The spool controls the connection between the main ports.

☞ **Note!**

The tank pressure (main port ③) is added to the control pressure (main port ①).



① = Main port 1 (A)
② = Main port 2 (P)
③ = Main port 3 (T)

Technical data (For applications outside these parameters, please consult us!)

general

Weight	kg	0.7
Installation position		Optional – if it is ensured that no air can collect in front of the valve. Otherwise, we recommend suspended installation of the valve.
Ambient temperature range	°C	See “admissible working range” page 5
Storage temperature range	°C	–40 to +80

Environmental tests:

Salt spray test according to ISO 9227	h	720 (NSS test)
Surface protection of solenoid		Coating according to DIN 50962-Fe//ZnNi with thick film passivation

hydraulic

Maximum control pressure	– Main port ①	bar	18; 20; 26; 30
Maximum inlet pressure	– Main port ②	bar	100
Maximum backpressure	– Main port ③	bar	At zero pressure (max. 100 bar, arising tank pressures are added up to the control pressure (main port ①)
Maximum flow		l/min	See characteristic curves on page 6
Maximum leakage	– Main port ③	ml/min	120 (50 bar in ②; I = 0 mA, 46 cSt)
Maximum pilot oil		ml/min	120 (50 bar in ②; $I = I_{max}$, 46 cSt)
Hydraulic fluid			Mineral oil (HL, HLP) according to DIN 51524; quickly biodegradable hydraulic fluids according to VDMA 24568 (also see RE 90221); HFD-R (phosphate ester); other hydraulic fluids at request
Hydraulic fluid temperature range		°C	–40 to +120
Viscosity range		mm^2/s	5 to 400
Max. admissible degree of contamination of the hydraulic fluid - cleanliness class according to ISO 4406 (c)			Class 20/18/15 [1)]
Hysteresis (within tolerance band)		bar	≤ 1.5 (control pressure 18; 20 bar) ≤ 2.0 (control pressure 26; 30 bar)
Step response (T_u + T_g) 0 % → 100 %; 100 % → 0 %		ms	≤ 60 (50 bar in ②; 46 cSt, q_V = 0 l/min, dead volume in ① 140 cm^3)
Repeatability		%	< 2 % of the maximum control pressure
Load cycles			10^7
Strainer element at the main port ② (P)		μm	250

[1)] The cleanliness classes specified for the components must be complied with in hydraulic systems. Efficient filtration prevents malfunctions and simultaneously increases the service life of the components.

For the filter selection, see data sheets RE 50070, RE 50076, RE 50081, RE 50086, RE 50087 and RE 50088.

Technical data (For applications outside these parameters, please consult us!)

electric

Supply voltage		V	12 DC	24 DC
Maximum control current		A	1.45	0.7
Coil resistance at 20 °C		Ω	5	22.5
Duty cycle [2]		%	100	
Maximum coil temperature [3]		°C	185	
Protection type according to VDE 0470-1 (DIN EN 60529), DIN 40050-9	– Model “K4”		IP 65 (with mating connector mounted and locked)	
	– Model “C4”		IP 66 (with mating connector mounted and locked)	
			IP 69K (with Rexroth mating connector, material no. R901022127)	
	– Model “K40”		IP 69K (with mating connector mounted and locked)	
Chopper frequency (recommended) [4]		Hz	150	
Control electronics [5]			Control device RA, see RE 95230 Control device RC, see RE 95200	
Rating according to VDE 0580				

[2] In case of use in heights of more than 2,000 m above sea level, we recommend consulting the manufacturer.

[3] Due to the temperatures occurring at the surfaces of the solenoid coils, the standards ISO 13732-1 and EN 982 need to be adhered to!

[4] The chopper frequency is to be optimized depending on the application. In this regard, observe the temperature range of the application.

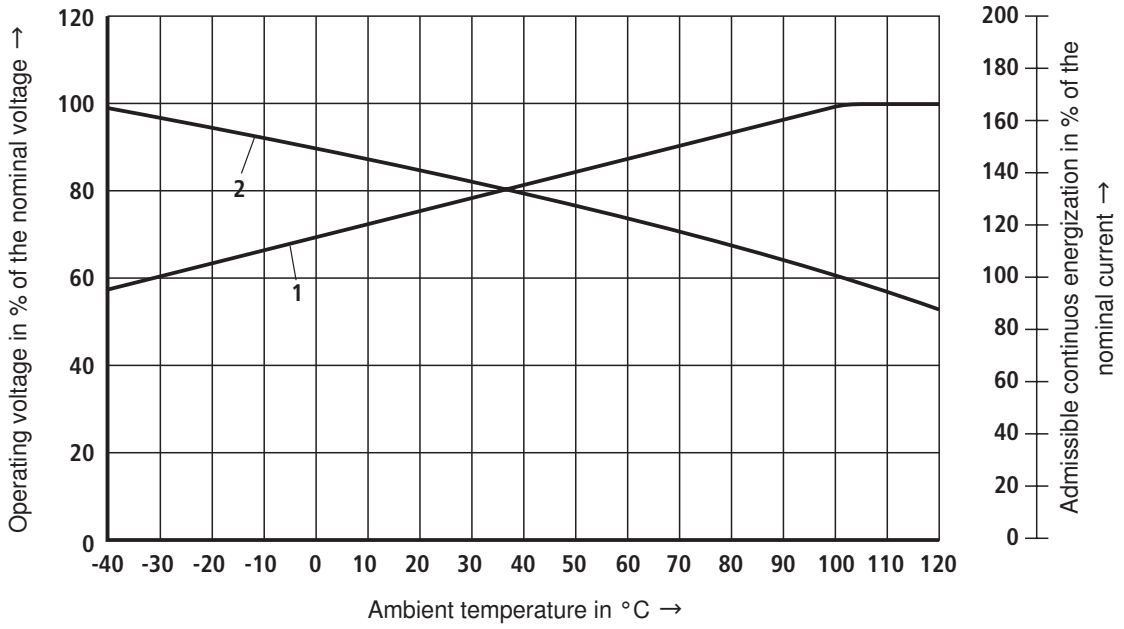
[5] Separate order, see RE 30116

Note!

- The technical data was determined at a viscosity of $\nu = 46\ mm^2/s$ (HLP46; 40 °C).
- You can find more information on using the hydraulic products of Rexroth in the data sheet RE 64020-B, “Hydraulic valves for mobile applications - General information”.

Admissible working range

Admissible working range depending on the ambient temperature

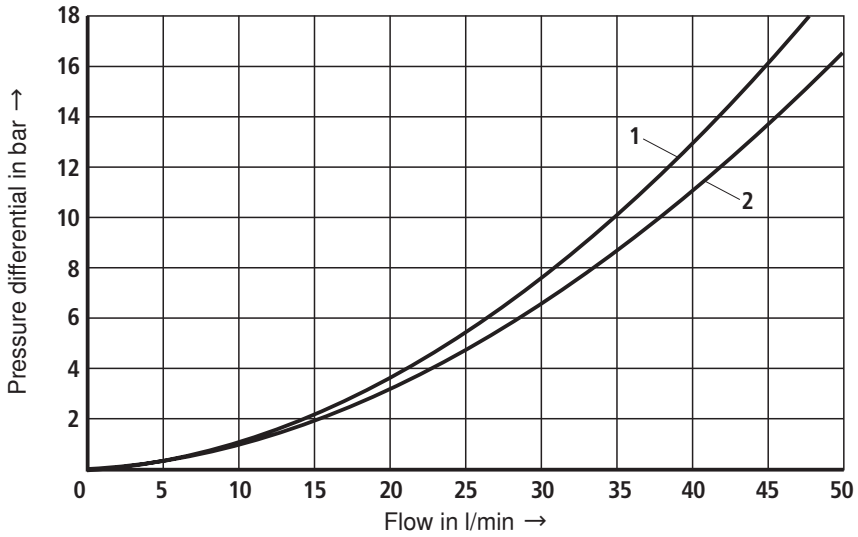


1 Required operating voltage in % of the nominal voltage

2 Admissible continuous energization in % of the nominal current

Characteristic curves (measured with HLP46, ϑ_{Oil} = 40 °C ± 5 °C)

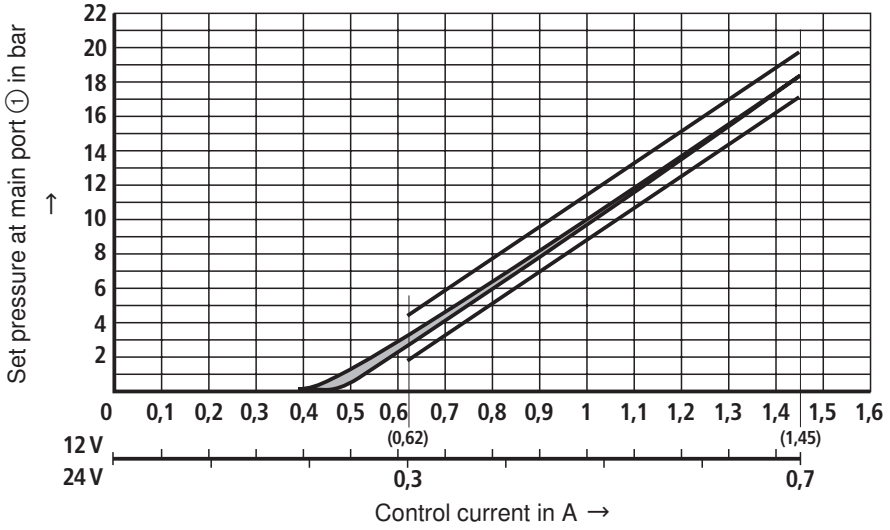
Δp-q_V characteristic curves



1	① → ③
2	② → ①

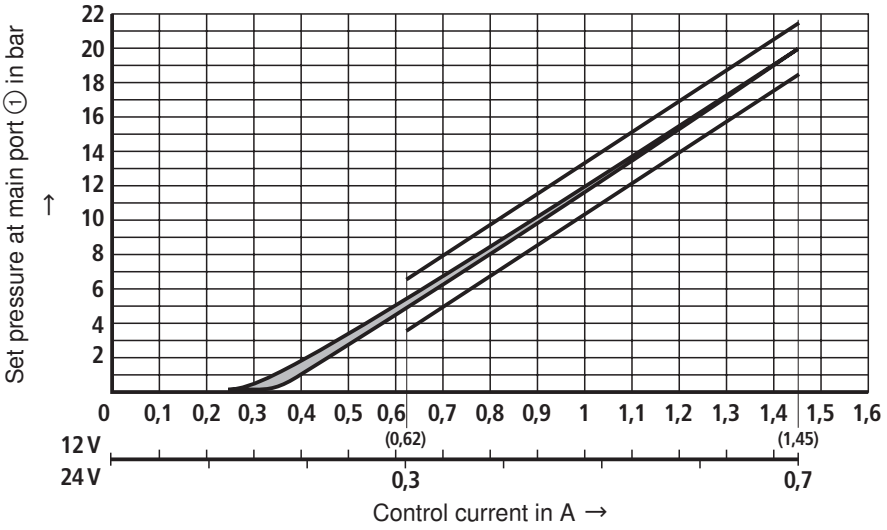
Characteristic curves with tolerance band (measured with HLP46, ϑ_{Oil} = 40 °C ± 5 °C)

Control pressure 18 bar

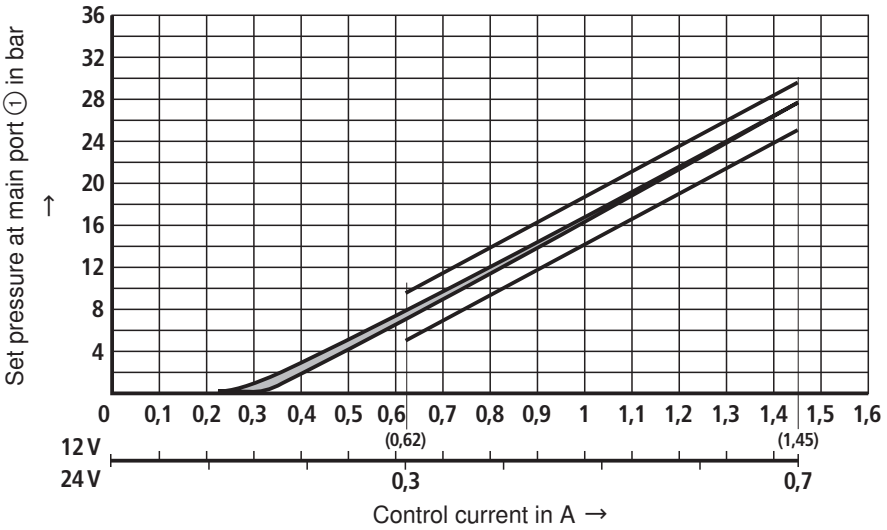


Characteristic curves with tolerance band (measured with HLP46, ϑ_{Oil} = 40 °C ± 5 °C)

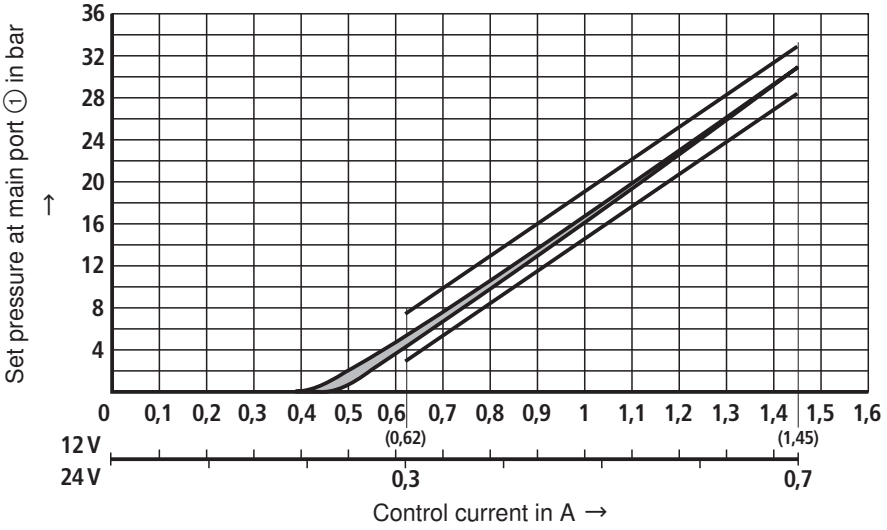
Control pressure 20 bar



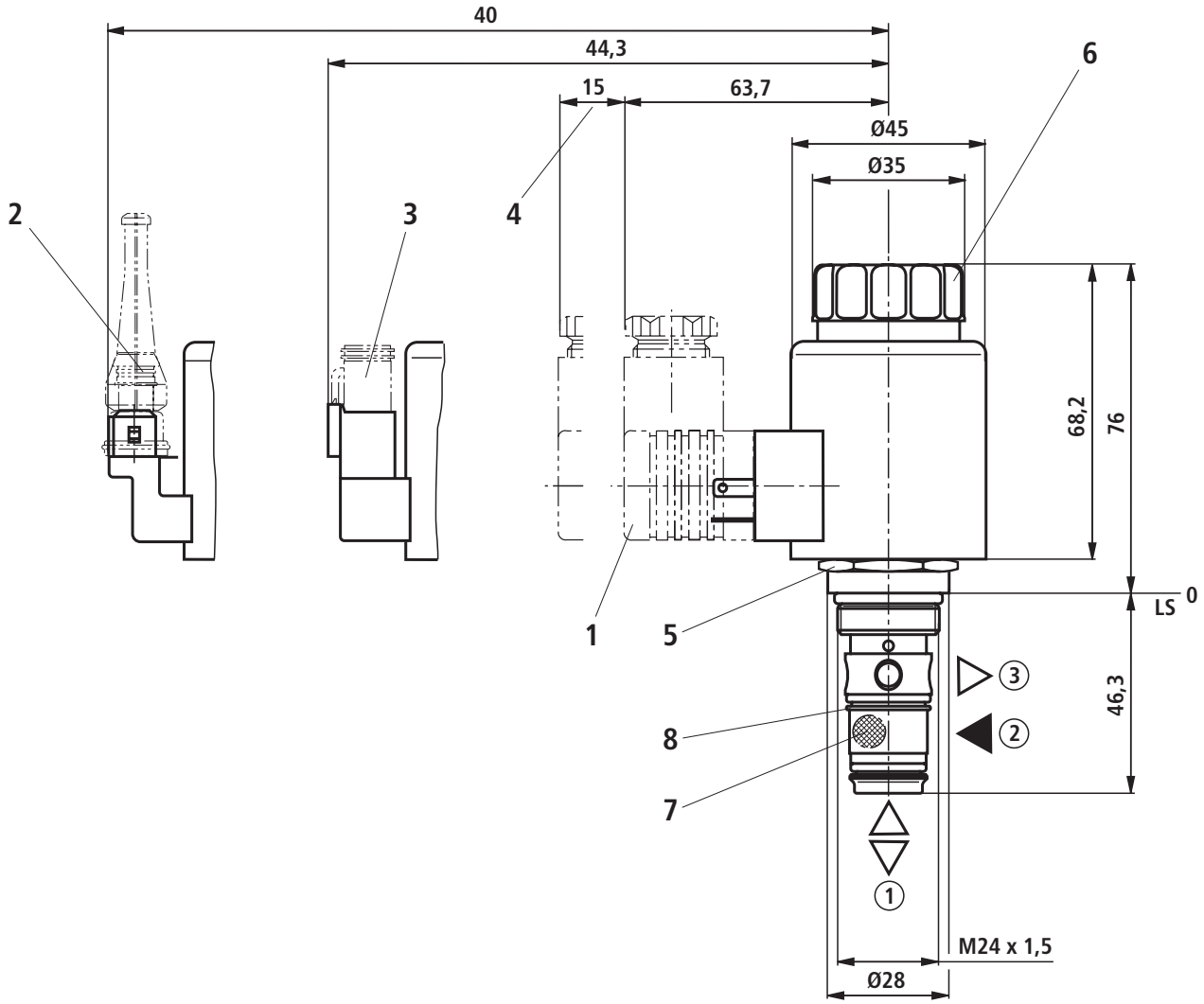
Control pressure 26 bar



Control pressure 30 bar



Unit dimensions (dimensions in mm)



1 Mating connector for connector “K4” (separate order, see RE 08006)

2 Mating connector for connector “C4” (separate order, see RE 08006)

3 Mating connector for connector “K40” (separate order, see RE 08006)

4 Space required for removing the mating connector

5 Hexagon 28 A/F; tightening torque $M_T = 10^{+2}$ Nm

6 Solenoid nut, tightening torque $M_T = 5^{+1}$ Nm

7 Strainer element; when mounting the valve, make sure that the strainer element is in the correct position (resting against item 8)!

8 Collar

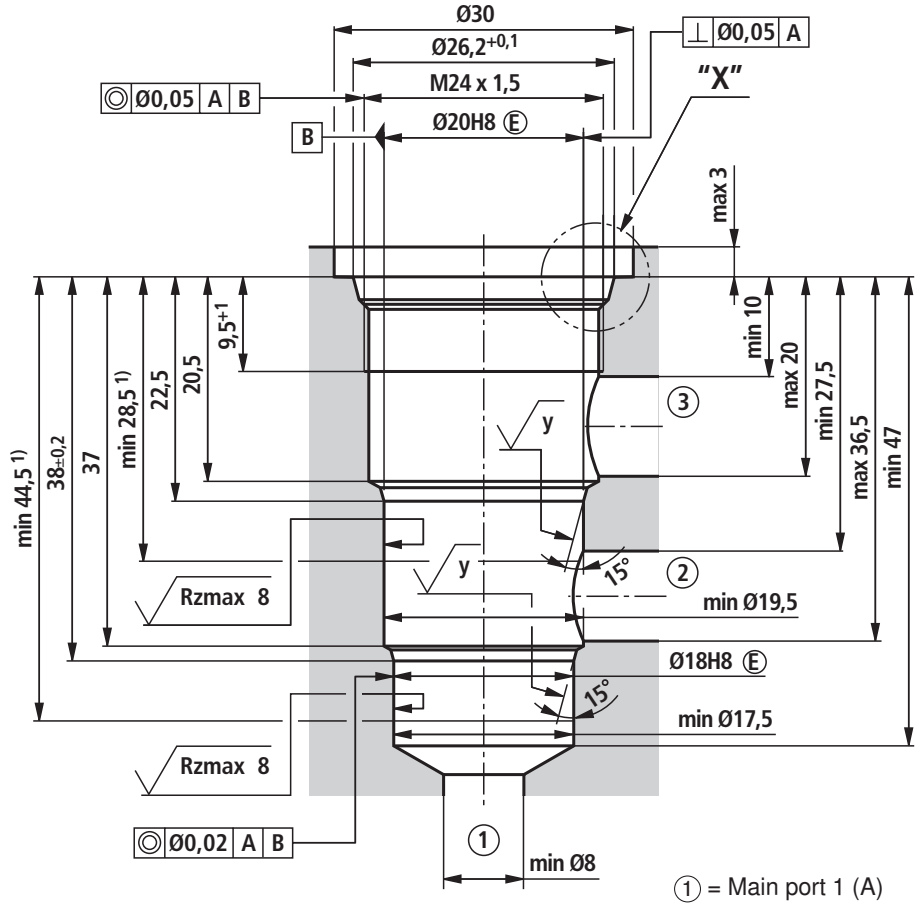
① = Main port 1 (A)

② = Main port 2 (P)

③ = Main port 3 (T)

LS = Location shoulder

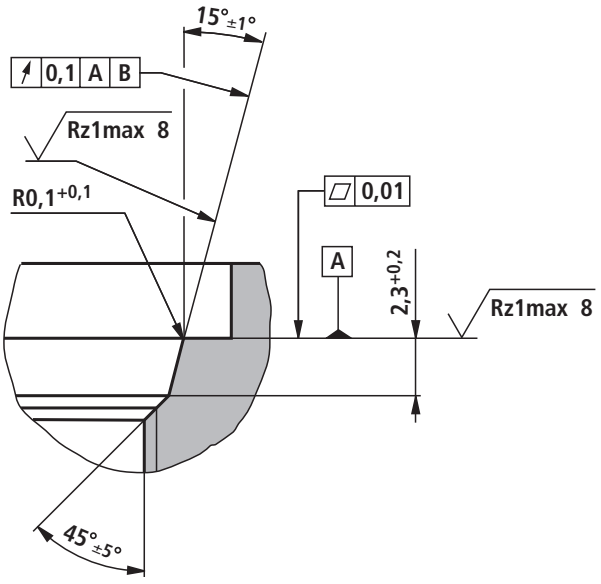
Mounting cavity R/MHDRE 06; 3 main ports (dimensions in mm)



1 = Main port 1 (A)
2 = Main port 2 (P)
3 = Main port 3 (T)
LS = Location shoulder

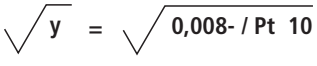
1) Depth of fit
2) Visual inspection

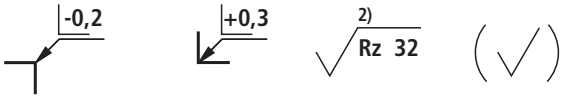
Detail "X"



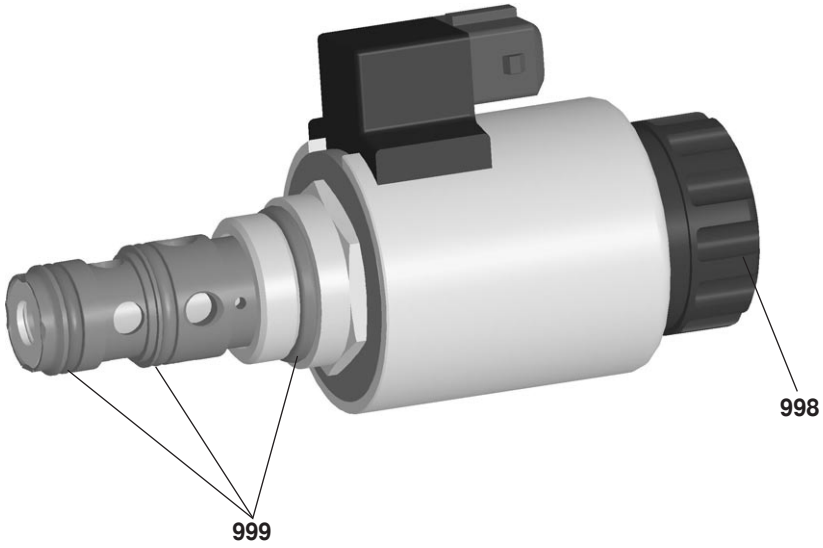
Standards:

Workpiece edges	DIN ISO 13715
Form and position tolerance	DIN EN ISO 1101
General tolerances for chip-producing processes	DIN ISO 2768-mK
Tolerance	DIN ISO 8015
Surface quality	DIN EN ISO 1302





Available individual components



Item	Designation	Material no.
998	Nut GZ45-01V BG	R961004245
999	Seal kit of the valve	R961003854

Bosch Rexroth AG
Hydraulics
Zum Eisengießer 1
97816 Lohr am Main, Germany
Phone +49 (0) 93 52 / 18-0
Fax +49 (0) 93 52 / 18-23 58
documentation@boschrexroth.de
www.boschrexroth.de

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Notes

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Phone +49 (0) 93 52 / 18-0
Fax +49 (0) 93 52 / 18-23 58
documentation@boschrexroth.de
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